

We Claim:

1. A method for intracardiac detection of repolarization alternans, comprising the steps of:
 - a) placing an electrode within the body and within the vicinity of the heart;
 - b) sensing at the location of the electrode the electrical voltage amplitude at a
predetermined time relative to a fiducial point in the heart rhythm of a series of beats,
the series of beats including a predetermined number of pairs of adjacent beats, each
of the pairs of adjacent beats including an even numbered beat and an odd numbered
beat;
 - c) subtracting the voltage amplitude of the even numbered beat from the odd numbered
beat in the adjacent beats, respectively, to obtain for each pair of adjacent beats a sign
of the difference in voltage amplitude; and
 - d) indicating the presence of repolarization alternans if the sign obtained in step (c) for
a predetermined number of adjacent pairs of beats is consistent.
2. The method as in claim 1, wherein the electrode placement step comprises contacting the
electrode to cardiac tissue.
3. The method as in claim 1, wherein the electrode placement step comprises implanting the
electrode into cardiac tissue.
4. The method as in claim 1, wherein the predetermined time relative to a fiducial point occurs
during the ventricular repolarization phase of the cardiac cycle.

5. The method as in claim 1, wherein steps (b) through (d) are repeated multiple different predetermined times relative to the fiducial point in the heart rhythm, whereby the detection method indicates the presence of repolarization alternans at any of a number of different parts of the cardiac beat cycle corresponding to said the multiple different predetermined times.

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6. A method for stabilizing repolarization alternans, comprising the steps of:
- a) contacting at least one electrode to cardiac tissue;
 - b) sensing at the location of one of the electrodes the electrical voltage amplitude at a predetermined time relative to a fiducial point in the heart rhythm of a series of beats, the series of beats including a predetermined number of pairs of adjacent beats, each of the pairs of adjacent beats including an even numbered beat and an odd numbered beat;
 - c) subtracting the voltage amplitude of the even numbered beat from the odd numbered beat in at least one pair of adjacent beats to obtain for each said pair of adjacent beats a magnitude of the difference in voltage amplitude and a sign of said difference;
 - d) dynamically defining an electrical stimuli for delivery to the cardiac tissue, the electrical stimuli including a timing and an amplitude selected in response to the values obtained for the difference in voltage amplitude and the sign of said difference;
 - e) conditionally delivering the electrical stimuli to the cardiac tissue if the obtained sign of a predetermined number of adjacent pairs of beats is consistent.

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7. The method as in claim 6, including the additional step of repeating steps (b) through (e).
8. The method as in claim 6, including the additional step of repeating steps (b) through (e) a multiplicity of times to minimize the difference in voltage amplitude between adjacent beats.
- 5 9. The method as in claim 6, wherein the sensing and delivering steps utilize the same electrode.
- 10 10. The method as in claim 6, wherein the sensing step comprises sensing the series of beats at a plurality of locations.
11. The method as in claim 6, wherein the delivery step comprises delivering the electrical stimuli to the cardiac tissue at a plurality of locations.
- 15 12. The method as in claim 6, wherein the predetermined time relative to a fiducial point occurs during the ventricular repolarization phase of the cardiac cycle.
13. A method for intracardiac detection of repolarization alternans, comprising the steps of:
- a) placing an electrode within the body and within the vicinity of the heart;
- 20 b) sensing at the location of the electrode a repolarization duration over a segment of a beat in a series of beats, the series of beats including a predetermined number of pairs of adjacent beats, each of the pairs of adjacent beats including an even

numbered beat and an odd numbered beat;

- c) subtracting the repolarization duration of the even numbered beat from the odd numbered beat in the adjacent beats, respectively, to obtain for each pair of adjacent beats a sign of the difference in repolarization duration; and

- d) indicating the presence of repolarization alternans if the sign obtained in step (c) for a predetermined number of adjacent pairs of beats is consistent.

14. The method as in claim 13, wherein the electrode placement step comprises contacting the electrode to cardiac tissue.

15. The method as in claim 13, wherein the electrode placement step comprises implanting the electrode into cardiac tissue.

16. A method for stabilizing repolarization alternans, comprising the steps of:

- a) contacting at least one electrode to cardiac tissue;
- b) sensing at the location of one of the electrodes a repolarization duration over a segment of a beat in a series of beats, the series of beats including a predetermined number of pairs of adjacent beats, each of the pairs of adjacent beats including an even numbered beat and an odd numbered beat;
- c) subtracting the repolarization duration of the even numbered beat from the odd numbered beat in at least one pair of adjacent beats to obtain for each said pair of adjacent beats a magnitude of the difference in repolarization duration and a sign of

said difference;

d) dynamically defining an electrical stimuli for delivery to the cardiac tissue, the electrical stimuli including a timing and an amplitude selected in response to the values obtained for the difference in repolarization duration and the sign of said difference;

e) conditionally delivering the electrical stimuli to the cardiac tissue if the obtained sign of a predetermined number of adjacent pairs of beats is consistent.

17. The method as in claim 16, including the additional step of repeating steps (b) through (e).

18. The method as in claim 16, including the additional step of repeating steps (b) through (e) a multiplicity of times to minimize the difference in repolarization duration between adjacent beats.

19. The method as in claim 16, wherein the sensing and delivering steps utilize the same electrode.

20. The method as in claim 16, wherein the sensing step comprises sensing the series of beats at a plurality of locations.

21. The method as in claim 16, wherein the delivery step comprises delivering the electrical stimuli to the cardiac tissue at a plurality of locations.